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October 1967

EVALUATIONS OF SOVIET SURFACE-TO-SURFACE MISSILE DEPLOYMENT

27TH REVISION

A Report of the Deployment Working Group

of the

Guided Missile and Astronautics Intelligence Committee

[redacted]

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The Guided Missile and Astronautics Intell gence Committee (GMAIC) wishes to express its apprec ation to the National Photographic Interpretation Center for its assistance in the editing, illustration, and publication of this report.

GUIDED MISSILE AND ASTRONAUTICS INTELLIGENCE COMMITTEE

DEPLOYMENT WORKING GROUP

MEMBERSHIP

Photographic Interpreter support is provided by the Photographic Analysis Group, NPIC.

NOTE: Recipients are asked to comment on the need for continued publication of this report. All relative correspondence should be directed to the Chairman, Guided Missile and Astronautics Intelligence Committee (GMAIC).

PREFACE

This report is published by the GMAIC Deployment Working Group (DWG) to provide a current evaluation of all ICBM, IRBM, and MRBM deployment including numbers, types of site configurations, estimated construction and operational status, and other evaluations by the DWG. These data constitute the majority view of the DWG membership, and may not correspond precisely to individual assessments by each member. Detailed tables with individual site data which appeared in earlier editions may be reinstated in future revisions.

Dissemination of the report was previously limited to holders of the DWG report, Soviet Surface-to-Surface Missile Deployment. Because the information contained herein is both supplemental and self sustaining, distribution will no longer be limited to holders of the above report.

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ILLUSTRATIONS

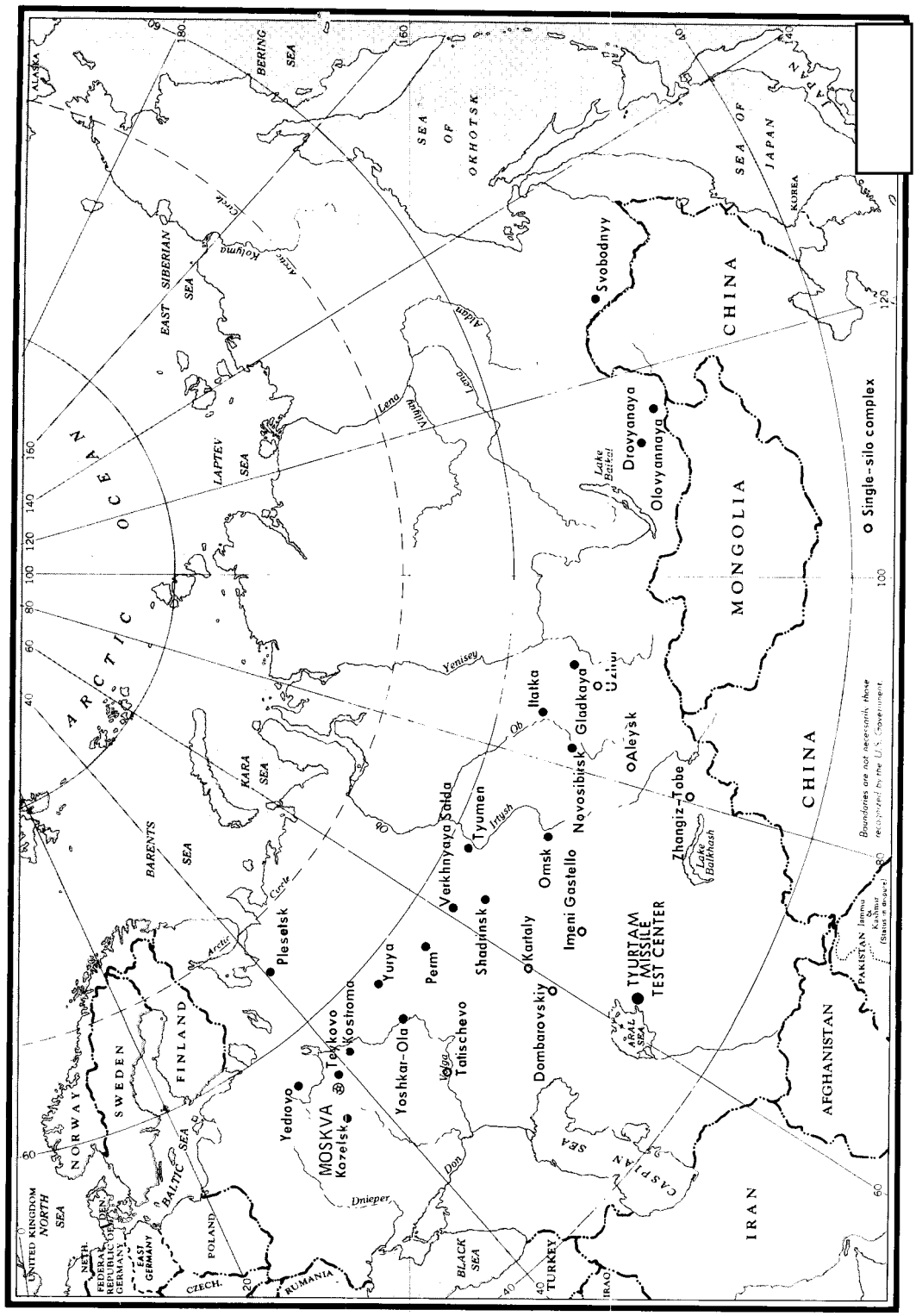


FIGURE 1. DEPLOYMENT OF SOVIET ICBM COMPLEXES.

INTRODUCTION

This report is the 27th Revision of Evaluations of Soviet Surface-to-Surface Missile Deployment prepared by the Deployment Working Group (DWG) of the Guided Missile and Astronautics Intelligence Committee (GMAIC). The 26th revision, due earlier this year, was canceled and not published because of a lack of significant new data. The information contained in this and previous revisions is self-sustaining and supplements the basic DWG report Soviet Surface-to-Surface Missile Deployment which provides detailed information on launch facilities of the Soviet Stragetic Rocket Forces. The basic report, dated 1 January 1962 (Control Number [redacted] has been revised and updated on a periodic basis. Further updating is accomplished in reports prepared and published for GMAIC by the National Photographic Interpretation Center (NPIC).

This 27th Revision summarizes all the data received thus far in 1967. [redacted] missions flown during this period, and continuing analysis of previous missions and other sources have provided additional information on the Soviet strategic missile deployment program. A summary of estimated status of identified ICBM, IRBM, and MRBM launchers at deployed complexes is given in Table 1. Cutoff date for information in this report is [redacted]

SOVIET ICBM DEPLOYMENT

Significant developments in the Soviet ICBM deployment program since publication of the last revision include the identification of a number of additional single silos under construction at deployed complexes, and a shortening of construction time for new groups of silos. One of the complexes, Plesetsk, appears to have broadened functions evident in its increased usage for training, space, and R&D missile firings. While a large number of new silos were identified during this period, the overall rate of new silo starts took a sharp downward dip from the previous year. Indeed, it appeared that both the Type IIIC and IIID silo programs were in their terminal phase. The most recent photography, however, indicates that new construction continues to occur at some complexes of both types, and construction of small silos has begun at one complex where such construction has not been noted previously. We are unable to ascertain, at this time, how long these programs will continue at this reduced rate.

CURRENT DEPLOYMENT

No new ICBM complexes have been discovered since our last revision; the number remains at 25. See Figure 1 for locations of deployed ICBM complexes. These complexes now contain a total of 945 confirmed and probable launchers, of which some 146 are soft and 799 are hard. Included in the hard launcher count are 721 single silos.

Of the 945 confirmed and probable launchers 650 to 700 are estimated to be operational, including some 522 in a hard configuration. In addition to the launchers cited above, the Soviets have 58 launchers at the Tyuratam Missile Test Center, at least 45 of which are considered to be complete. We continue to believe that none of the Tyuratam launchers is maintained in an around-the-clock operational status, but, granted sufficient alert time, a majority could be used in an operational role. The ICBM sites have been designated by type, as shown and explained in Figure 2.

TYPE IIIC DEPLOYMENT

There has been no further deployment of Type IIIC launch sites to complexes other than

those originally identified in [redacted] Aleysk, Dombarovskiy, Imeni Gastello, Kartaly, Uzhur, and Zhangiz-Tobe. However, 52 new sites have been added to these complexes since our last revision. There is now a total of 182 confirmed and probable Type IIIC launch sites identified, of which 114 are believed to be operational. The site deployment pace at these complexes has maintained a fairly steady rate through [redacted] averaging 5 to 6 starts per month. This rate has not been maintained during [redacted] however. Indeed, only one new launch group has been identified as starting since the end of [redacted] As we would have expected several new groups to have been started by now, it is entirely possible that this program is drawing to a close. However, [redacted] revealed stockpiling of construction materials at the Zhangiz-Tobe complex support facility. Some of the items appeared to be prefabricated sections, possibly for use in silo headworks and silo-door construction, so it would appear that additional deployment may be forthcoming. The last individual site to have been started at this complex was in [redacted] If the program has not yet terminated and renewed construction brings the 1967 rate up to the 1965-66 start averages, it is possible that a four-year program for the weapon system would culminate with about 220 launchers. However, if the construction starts should continue at these complexes, it is possible that new sites will resemble those currently under development at the Tyuratam Missile Test Center.

The current inventory of Type IIIC sites is shown below, followed by a brief description of interesting developments at each of the complexes since our last revision.

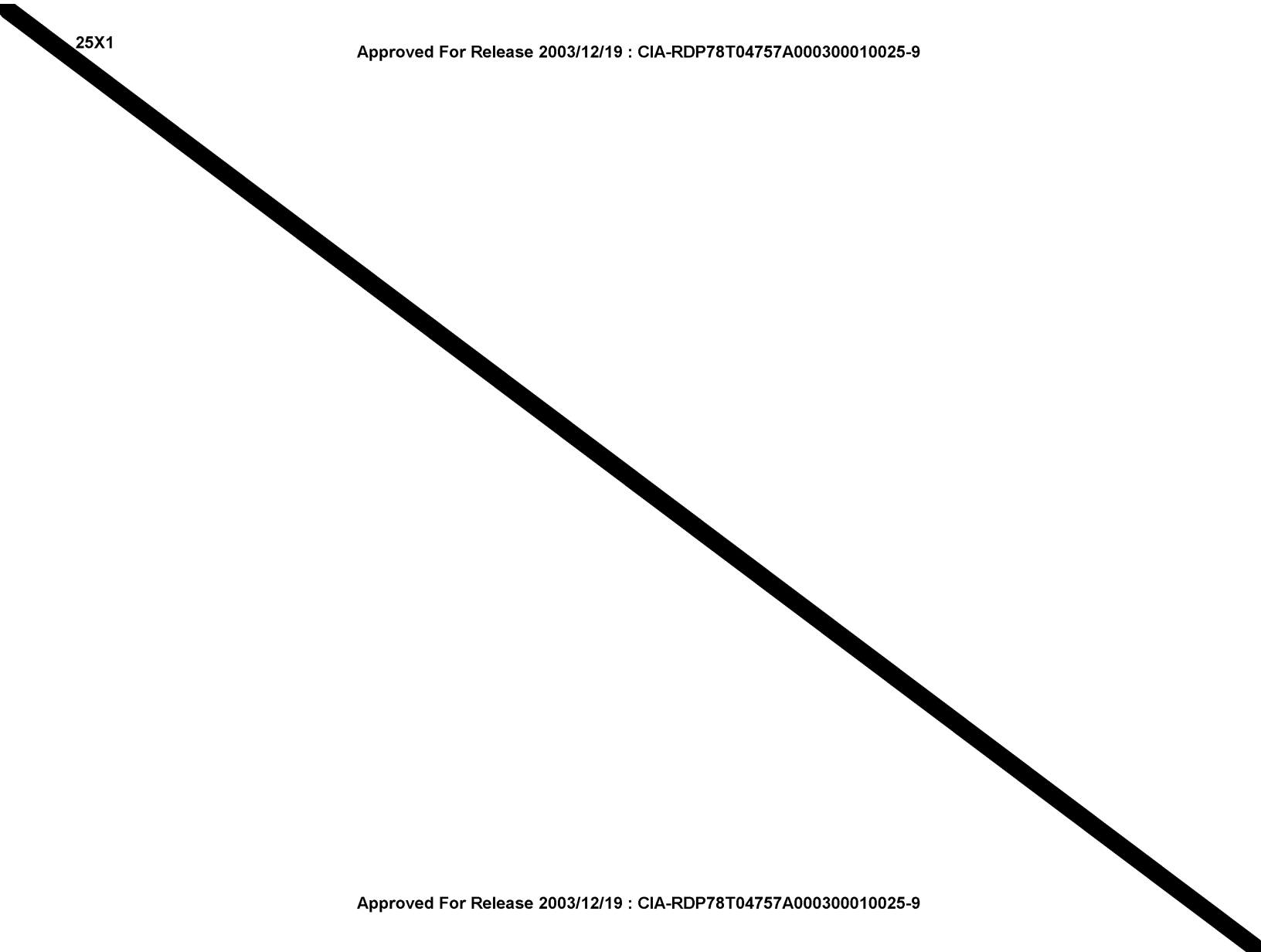
Complex	No of Sites
Aleysk	19
Dombarovskiy	37
Imeni Gastello	29
Kartaly	29
Uzhur	43
Zhangiz-Tobe	25
	182

Aleysk

Only 2 new sites have been added to the Aleysk Complex since our last report, and no new launch groups have been started since [redacted] revealed that 2 sites in the complex (Launch Sites 19 and 20) displayed a deviation from the standard Type IIIC site construction techniques, in that the 30- to 35-foot diameter silo coring was dug from ground level rather than from the bottom of the usual U-shaped excavation. However, this does not appear to be a program-wide change in construction technique, as it has only been observed at these sites. [redacted] revealed no major changes at Aleysk, but 2 buildings were being added to the rail-to-road transfer point area. The hardened complex command post still has not been backfilled, but the building appeared to be nearly complete.

Dombarovskiy

Fourteen new sites have been added to this complex since [redacted] The initial site in the last launch group was started about [redacted] No significant buildup or expansion was discernible on photography, but an abundance of unused materials in the storage area has been evident since [redacted] Construction is still continuing on the large underground building near the complex support facility, in a location which indicates that it will probably serve as the complex command post.



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Imeni Gastello

Six new launch sites, 4 of which represent the start of a new group, were added to this complex since our last revision. The level of open-stored supplies remains as it was in [redacted] However, 2 large warehouse-type buildings are currently under construction in the complex support facility near the rail yard. In the headquarters area of the complex support facility, considerable expansion is underway and a new multistoried building is under construction. Also the large headquarters-type building (probable complex command post), which was under construction in a large earth excavation, is about ready for backfilling.

The security fenceline at Launch Site 17 has been changed to exclude the legs of the L-shaped electronic facility, and the L facility itself appears to have been abandoned.

Kartaly

Five new launch sites have been added to the complex this year, but the last group of sites was started about [redacted] However, considerable stockpiling of materials in the support area was noted on [redacted] including 26 cylindrical tanks. [redacted] additional materials, including prefabricated concrete blocks used in silo-door construction, were seen but 17 of the tanks observed in [redacted] had been removed. Work was also underway on the hardened complex command headquarters building near the main support facility. A new airstrip was identified in the same general vicinity on [redacted] It is interesting to note that approximately 15 crates or boxes of various sizes were located near the helicopter pad at Launch Site 19, the first indication of helicopter delivery of materials.

Uzhur

There are 20 new launch sites at this complex since our last revision, and the start of the initial site in the last group began about [redacted] Heavy concentrations of construction materials were visible in the support area on [redacted] Additional materials were evident on [redacted] and stockpiling was still continuing in [redacted] the date of the last interpretable photo coverage of the buildup. Like Imeni Gastello Site 17, the fenceline at the control site for one of the later groups has been altered so that it does not enclose the ends of the legs of the L-shaped electronic facility.

Zhangiz-Tobe

This complex received 4 new sites during this reporting period. Launch Site 21, in the fourth group, is now considered to be a control site. A large excavation a few hundred feet from the launch silo appears to be adequate to accommodate a typical control-type building, but its purpose cannot be confirmed at this time. At Launch Site 4, the silo liner was removed and replaced with a new one after the site had become operational. The liner which was removed was dark, but the replacement liner appeared silvery. Whether this difference in appearance is a result of fire or paint is not known. The complex is active, and extensive stockpiling of supplies is evident.

TYPE IIID DEPLOYMENT

We have identified a total of 539 confirmed and probable Type IIID silos deployed at 10 complexes across the USSR. We believe that some 330 to 360 of these silos are now operational. Identified Type IIID silos estimated operational and under construction, as of [redacted] are tabulated below by complex and construction wave. Significant developments in the deployment program for the Type IIID small single silos since publication of our last revision include: (1) the possible beginning of a third wave of deployment, signalled by the initiation

of deployment at a tenth complex and the reappearance of construction materials at one of the original Type IIID complexes; (2) an overall slowdown of the rate of construction starts, especially noticeable at the 5 original complexes; (3) the continuation of deployment at the 4 second-wave complexes; (4) a reduction of about 6 months in construction time; (5) the abandonment of some, if not all, L-shaped electronics facilities; and (6) confirmation that the canisters associated with the SS-11 missile are inserted into the silo during the loading operation.

	Identified Sites	Estimated Operational	Sites Under Construction
1st Wave			
Drovyanaya	51	40	11
Gladkaya	61	50-60	11- 1
Olovyannaya	91	60	31
Perm	41	40	1
Tatishchevo	121	80-90	41-31
2nd Wave			
Kostroma	31	20	11
Kozelsk	44	10	34
Svobodnyy	53	20	33
Yedrovo	40	10-20	30-20
Possible 3rd Wave			
Teykovo	6	0	6
Totals	539	330-360	209-179

Possible Third-Wave Deployment

Slowdown in Construction Start Rate

The start rate of Type IIID silos declined sharply during the first half of [redacted] as compared with the rate established during the first half of [redacted] A comparison of construction starts identified for the first, second, and possible third waves of Type IIID silos during the first half of [redacted] and the first half of [redacted] is shown below. It is clear that launch group and launch site construction starts both declined at the first-wave complexes. While the number of launch group starts at second-wave-complexes remained

[redacted]		
1st Wave (began early 1964)– Drovyanaya, Gladkaya, Olovyannaya, Perm, and Tatishchevo Complexes		
Launch Sites	130	14
Launch Groups	14	1
2nd Wave (began late 1965) - Kostroma, Kozelsk, Svobodnyy, and Yedrovo Complexes		
Launch Sites	73	55
Launch Groups	7	8
Possible 3rd Wave (began [redacted] Teykovo Complex		
Launch Sites	0	4
Launch Groups	0	1
Total Launch Sites	203	73
Total Launch Groups	21	11

relatively stable, the slightly reduced number of silo starts identified may be the result of inability to detect them during the very early stages of construction.

If the sites at Teykovo herald the start of a third wave of construction starts, the silo-start rate may increase sharply again, perhaps to a level comparable to the 1966 combined first- and second-wave rates of about 22 sites per month. Until more evidence becomes available, we will be unable to determine the pace and extent of this possible third wave.

Continuation of Deployment at Second-Wave Complexes

Construction of Type IIID silos began at the 4 second-wave complexes in [redacted] Some 103 sites are identified as having been started at the 4 complexes during the 12 months of 1966, as compared with 55 sites for the first 6 months of 1967. These figures indicate that a very stable construction program of about 9 sites per month was being continued at least through mid-1967. Since the end of [redacted] only 2 new sites and no new groups have been discovered at these 4 complexes. It is too early to determine whether this limited activity is significant.

Reduction of Construction Time

The observed construction time for a group of 10 Type IIID silos has been reduced to 15-18 months from the 21-24 months observed earlier in the program. The effect of the shortened construction time has been to bring the launchers to operational status about 6 months earlier than originally estimated. Allowing 3 months for fitting out, missile insertion, system integration, and checkout of all 10 silos in a group, the time from start of construction to group IOC (initial operational capability) is now estimated to be 18-21 months.

Abandonment of L-Shaped Electronics Facilities

L-shaped electronics facilities have been observed at 3 of the SS-11 complexes (Olovyannaya, Tatishchevo and Yedrovo), and at all 6 of the SS-9 complexes. There are indications that some of these facilities are being abandoned (Figure 3). Evidence of abandonment consists of the discontinuance of construction of some of the facilities that were in advanced stages of construction, and the repositioning of security fencelines to exclude the legs and terminal excavations at sites in less advanced stages of construction. Although there is no evidence of a completed L-shaped facility having been dismantled, they may have been abandoned and left in disuse. The function of the L-shaped facilities has never been established, and it is not possible to evaluate the significance of their abandonment.

Sequence of Type IIID Silo Loading

[redacted]

PLESETSK MISSILE AND SPACE CENTER

Since our last revision, considerable activity has occurred at the Plesetsk Missile and Space Center (Figure 5). Analysis of this activity indicates emphasis on crew training, military space launchings, and missile flight testing. These functions probably now have a greater emphasis than the original operational ICBM role of the complex. Launching of both

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ICBMs and Cosmos satellites has continued. Testing of the KY-6 represented the first identifiable long-range (3,100-nm) firing of a solid propellant missile from a center capable of supporting an ICBM flight test program. Construction activity has also continued at a high level. Twenty-four launch sites are now identified at Plesetsk, 10 completed and 14 under construction. Two of the 10 completed sites (Launch Sites 11 and 13) are unique to the Plesetsk Center, 6 are ICBM sites representative of 5 prototypes at Tyuratam, and 2 are former SS-6 sites modified for space launchings.

Recent photography of space-related facilities at Plesetsk points to further expansion of its space role. [redacted] coverage of Launch Site 3, containing one of the 3 remaining operational launch points for the SS-6 (Launch Site 2 was modified for a space role during 1964-1965), indicated that the on-pad service tower had been removed, suggesting that possibly a second SS-6 launcher is being modified for space firings. Most likely, Launch Sites 9 and 10 are also space related, as indicated by their size, nature, and complexity. Both these sites contain 2 soft pads; one pad at each appearing complete and capable of supporting launches. A gantry, like the one serving the completed pads, is being constructed to serve each second pad. As yet, no missile system can be associated with Launch Sites 9 and 10 but it will apparently be liquid, as indicated by the presence of propellant storage facilities. Also, the height of the completed gantries is approximately 150 feet. These sites could accommodate an operational space program(s) requiring a high firing rate.

Other significant activity at Plesetsk concerns the construction of new and different launch sites that are probably related to more than one missile development program. These sites are of both hard and soft configurations and, with the exception of Launch Site 16, are remotely located some 20 nm east of the original area containing operational ICBM launchers. Most, if not all, of these sites will apparently be served by a support base under construction south of Launch Site 11. Two drive-through buildings, probably for missile assembly, are nearing completion in this support base; nearby construction indicates a similar building in the early stages.

We have been able to tentatively group the new Plesetsk missile launchers. One grouping consists of Launch Sites 11, 12, and 14. Construction of these sites was started during late 1964 or early 1965. Launch Site 11 contains 2 completed silos. These silos are about [redacted] apart, and access aprons approach each silo on an azimuth of 50 degrees. Either rail or alignment lines are observed on the access aprons, but stop about 20 feet short of the silos. These lines terminate in a configuration suggestive of integral erector mechanisms. This raises suspicion that soft launch positions may also be present at Launch Site 11.

Photography on [redacted] approximately 1.5 minutes after the launch of a KY-6, showed a smoke trail extending downrange from Launch Site 11, confirming the association of the KY-6 program with this site. However, the silos at Launch Site 11 may not have been complete when the first launch of the KY-6 occurred at Plesetsk on [redacted] thus adding to the suspicion that both soft and hard launch positions are present.

Launch Site 14 contains a single silo. This site was observed in a late stage of construction [redacted] and has a signature resembling half of Site 11. It is probably also related to the KY-6. Launch Site 12, located 2,300 feet west of Site 14, could be related to this same system but a launch point is not yet discernible. The amount of construction and the size of the fenced area at Site 12 suggests it may have control and/or support functions in addition to launch.

25X1 [redacted]

25X1

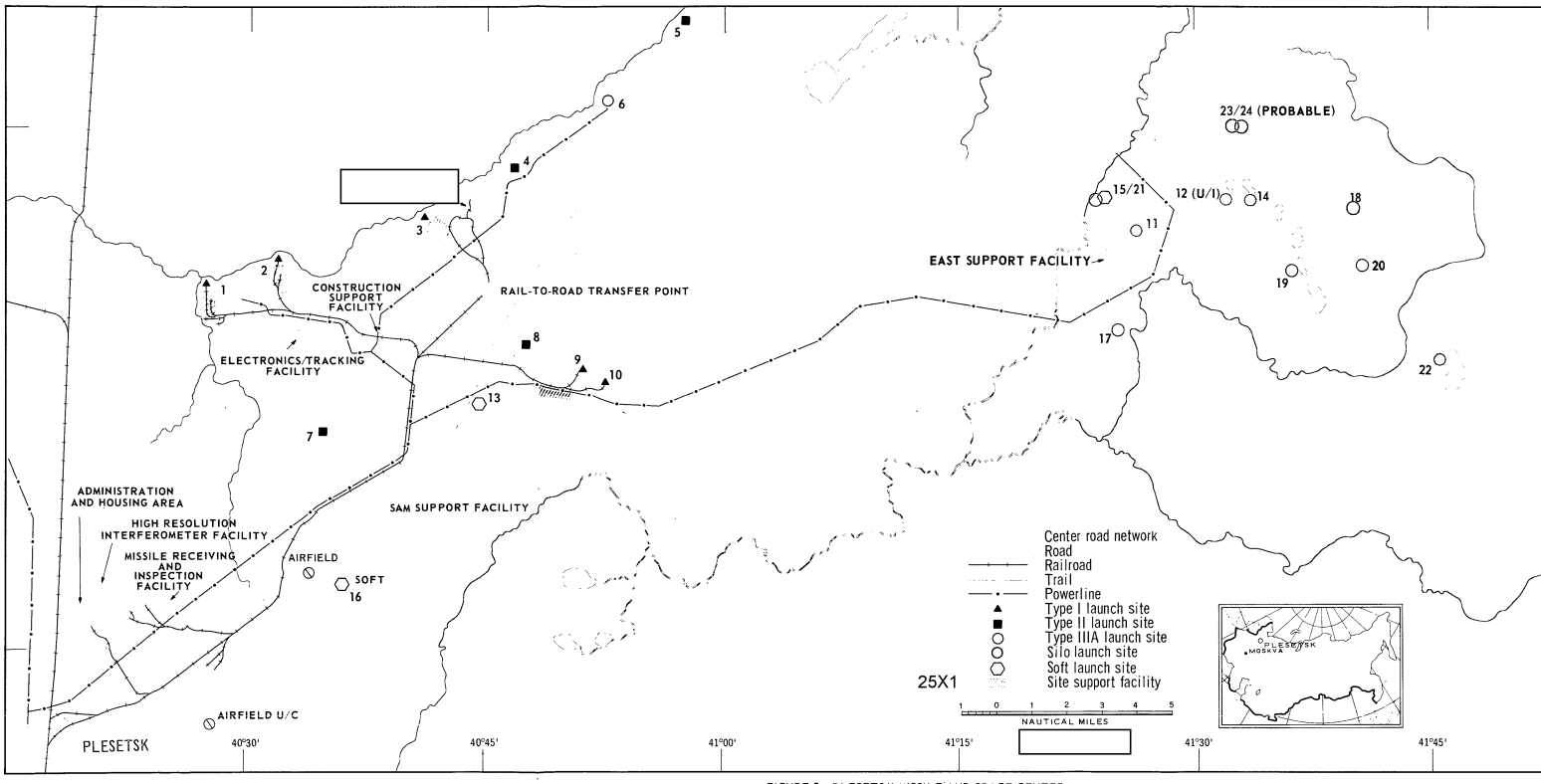


FIGURE 5. PLESETSK MISSILE AND SPACE CENTER.

25X1

Launch Sites 15, 16, and 21 form another grouping. There are 3 silos under construction at Site 15, and dual soft pads about 320 feet apart at Sites 16 and 21. These launchers should be ready to support firings in the near future. They are probably associated with some missile program other than the KY-6.

The triple silos at Launch Site 15 are contained within the same security fence as Site 21, suggesting a common missile system. Construction of these sites probably was started in [redacted] As yet, there is no evidence of an erector or launch stand at the soft pads at Site 21. All silos at Site 15 have circular headworks with outer and inner diameters of about 35 and [redacted] feet, respectively, and no evidence of exhaust duct outlets. Site 16 is located south of the sod strip airfield - a distance of about 27 nm from Sites 15 and 21. Construction of Site 16 probably was started during late 1965 and no erector or launch stand has yet been identified.

The single silos at Plesetsk form another grouping, and have been designated Launch Sites 17, 18, 19, 20, and 22. These sites were started at different time intervals during 1960 and none has yet progressed past the midstage of construction. There are enough construction similarities (headworks, road access, loading orientation, etc.) among these single silos to indicate that all will accommodate the same missile system. The distribution of these sites throughout the area suggests that they will form a rangehead prototype launch group. The presence of these single silos implies that field deployment is intended. Photography has not yet permitted us to determine whether the single silos are like the silos at Sites 11 and 14, or those at Site 15. Thus, we cannot yet judge whether the single silos are for the KY-6, or the missile to be developed at Sites 15, 16 and 21.

Launch Sites 23 and 24 can also be grouped, but they may be associated with the sites discussed above (Sites 17, 18, 19, 20, 22). These sites are about 1,055 feet apart, and each contains a silo under construction. Ditching connects these silos, which are being constructed [redacted] circular excavations dug from ground level. Outer and inner diameters of the silos are about [redacted] respectively. These silos have a [redacted] appendage located 90 degrees to the indicated loading axis. As yet, no missile system can be related to these sites.

TYURATAM MISSILE TEST CENTER

Since our last revision, several missions have provided good-to-excellent coverage of the Tyuratam Missile Test Center (Figure 6). Highlights of these coverages include the identification of rail spurs connecting a newly constructed space facility with both the Complex A and J launch areas; the construction of a rail line between Pads C2 and C3; a temporary work hiatus at the silos at Launch Group M, and at 3 silos in Launch Group I; continued construction at Launch Site I7; the impending completion of modifications to Launch Site G1-G2; changes incorporated to Launch Site G3-G4; and considerable construction progress at Complex J.

In the support area of Complex A, construction on the large building located north of the original assembly/checkout facilities was externally complete. Equipping the building interior is probably underway, and rail spurs are being constructed to connect it with the Complex J and A launch areas. The size of this building, coupled with rail line connections to Pads J1 and J2, suggests its use for space vehicle assembly.

Originally, none of the SS-7 soft pads at Complex C was rail served. However, during the period from [redacted] a rail spur was constructed between Pads C2 and C3. The construction of this spur could portend new activity from Complex C.

Construction of the 3 single silos of Launch Group M, which was started in late 1965, has progressed slowly. Characteristics of these silos are different than either the Type IIIC (SS-9) or Type IIID (SS-11) single silos. [redacted] coring was dug for each of the silos at Launch Group M. Work in the silo excavation was halted at all 3 sites about [redacted] and was not resumed until early 1967. The reason for this halt is unknown, but it could have resulted from a change or modification to the method by which the system is to be handled, serviced, or launched. Recently, silo headworks (about [redacted]) construction was started at all the sites at Launch Group M. The size of the headworks suggests sufficient space for exhaust outlets, power generation, and other servicing equipment.

Launch Group I contains 6 dispersed Type IIIC single silos. Launch Sites I1, I4, and I5 are operational, and associated with the SS-9. These silos have an inner diameter of about 15 feet. The other 3 dispersed sites of this group (Launch Sites I2, I3, and I6) are not yet complete. Construction of these silos, which was started during the latter half of 1965, has progressed slowly. In the spring of 1966, construction was halted at these sites and was not resumed at Sites I2 and I3 until [redacted] Site I6 remained dormant until [redacted] when signs of renewed activity were evident. As yet, silo headworks have not been identified, but each silo has an associated structure not observed previously in the construction of Type IIIC single silos. At this time, it appears unlikely that these sites will reach completion before early 1968.

Launch Site I7 contains 3 silos which are being constructed in separate excavations spaced about 400 feet apart. In most respects, the construction techniques have been similar to those of Type IIIC single silos, including the coring diameter (about 35 feet) and headworks size (70 by 65 feet). However, each silo at Site I7 has an associated equipment building that was not observed during the construction of Type IIIC single silos. These silos are further along in their construction cycle than Launch Sites I2, I3, and I6. Barring a crash effort, it appears unlikely that Site I7 will be operational before mid-1968.

The major modification effort underway at Launch Site G1-G2 continues to progress. This site was first completed in early 1964, and was used to launch the SS-10, but no launchings of this missile have been detected since [redacted] However, on [redacted] a missile [redacted] in length was erected on Pad G2. Other than these missile sightings, little activity was observed at the site until [redacted] At that time, a major modification effort was begun, apparently to accommodate another system. As yet, it is not clear whether this system will be ICBM or space related.

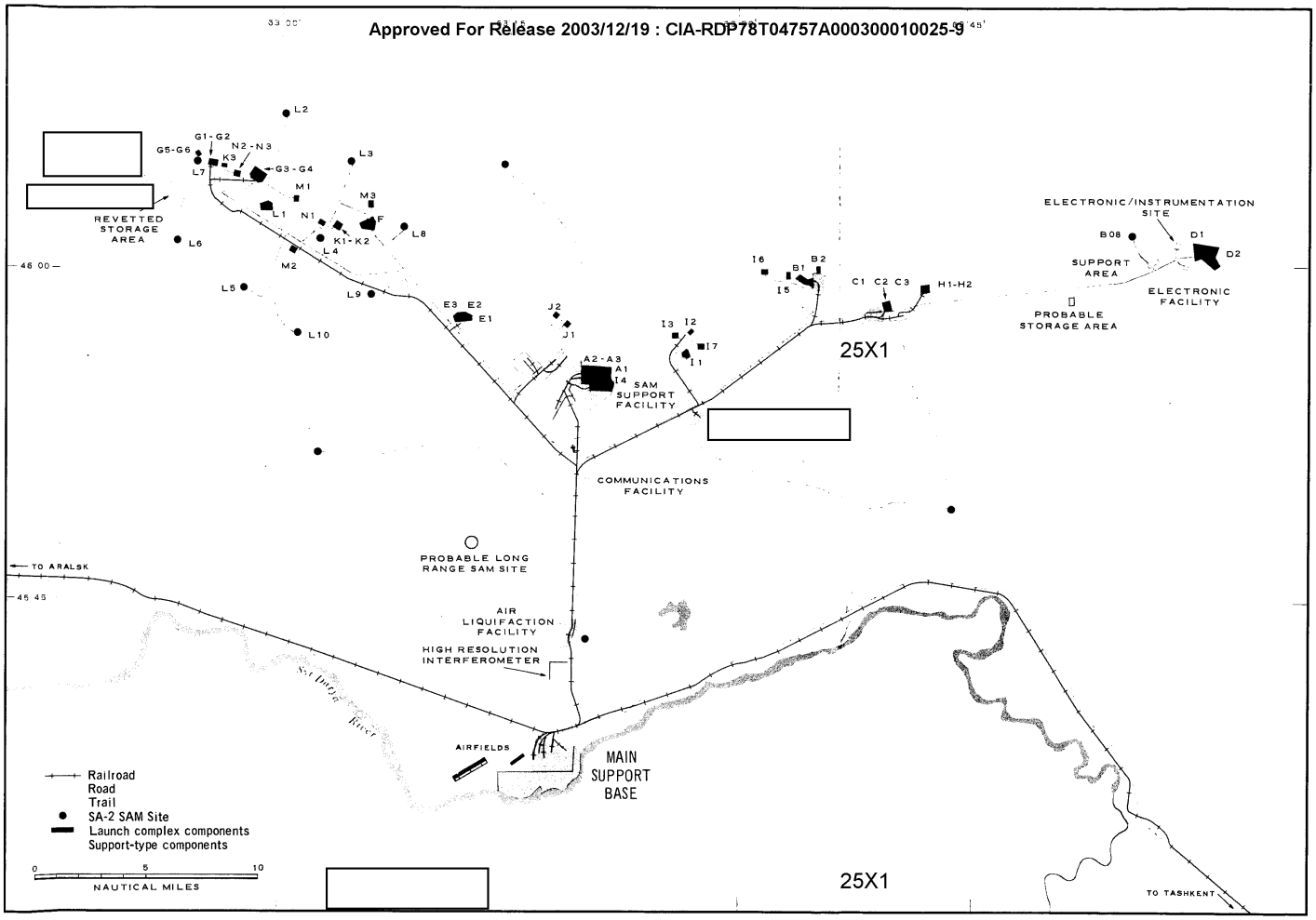
Modifications observed at Launch Site G1-G2 include the relocation of security fencing to enlarge the launch area; the construction of 2 new rail-served launch pads, designated G1A-G2A; and the lengthening of the Pad G2 missile-ready building. The earth-covered fuel storage buildings flanking the original pads were also enlarged. Conduits were installed to connect these buildings with each new launch pad. This indicates that the site will continue to be associated with a liquid propellant system.

After the Pad G2 ready building was lengthened, rail lines were installed to allow missiles to be taken in or out from either end. Four rail lines now enter the Pad G1 ready buildings. These modifications indicate an increase in vehicle assembly and storage space over that available for the SS-10 program. This suggests a requirement for a high firing rate, or that some vehicles may be intended for Tyuratam launchers other than Pad G1A-G2A.

The new G1A-G2A pads may be ready to

25X1

25X1



support firings by late 1967. The old SS-10 gantries will probably not be used at these pads. The center lines of the new pads do not align with the original gantry tracks, new gantry tracks have not been installed, and no activity indicating gantry modification has been observed. The distance between launch points and missile-ready buildings remains about the same. The wishbone pattern of the rail lines installed forward of the new launch pads indicates that a different handling and erection concept is planned, however, and the proximity of Launch Group M, as well as construction time-phasing, could indicate an association between Pads G1A-G2A and the silos at Launch Group M.

Launch Site G3-G4, associated with the SL-9 (PROTON) space launch vehicle, underwent
25X1 modification during the period from late
25X1 During that time, the downrange security fence was relocated to enlarge the launch area. Also, ditches were dug from the launch area to the buried building at the Site G3-G4 electronic facility. Large-diameter conduit was installated in these ditches, suggesting the installation of passageways to facilitate the movement of personnel and/or the routing of instrumentation cabling.

Considerable ditching also occurred between and under the G3 and G4 launch pads. This ditching extended to newly constructed earth-mounded buildings located between the pads. Before backfilling, large-diameter conduits were installed in these ditches.

Work continues to progress at Launch Complex J. Pad J1 construction, which was started
25X1 in has progressed steadily and should reach completion during late 1967. Allowing an additional 6 months to a year for installation and checkout of equipment, it appears that Pad J1 might be capable of supporting firings by mid-1968. Pad J2, which was started appears to be about 6 months behind J1 in construction progress. This pad will probably not be operational until late 1968.

The exterior of the large vehicle assembly building has been complete since and covers an area of nearly 500,000 square feet. Equipping the interior of the building is probably still underway. Two large doors have been identified at both the exit and entrance ends of the building. Exit-door size restricts vertical egress height of assembled stages to about 150-110 feet.

Foundations to support a trackway for a large transporter are being constructed between the large assembly building and the launch area, a distance of about 18,000 feet. Ditching for these foundations was identified in and construction of the reinforced concrete trackway started in early 1966. Emplacement of rails on the finished segments began in early 1967.

A service tower is being constructed at Pad J1, and it is apparent that Pad J2 will also be equipped with a similar tower. The service tower base has the shape of a large equilateral triangle, and is constructed of massive steel beams. When completed, this tower will apparently rotate on-pad by means of a circular rail track and be used to fuel and service the vehicle. The tower may also have some function in the erection of the vehicle. A crane about 320 feet high is engaged in the assembly of the service tower. A boom attached at the 245-foot level extends higher than the top of the crane.

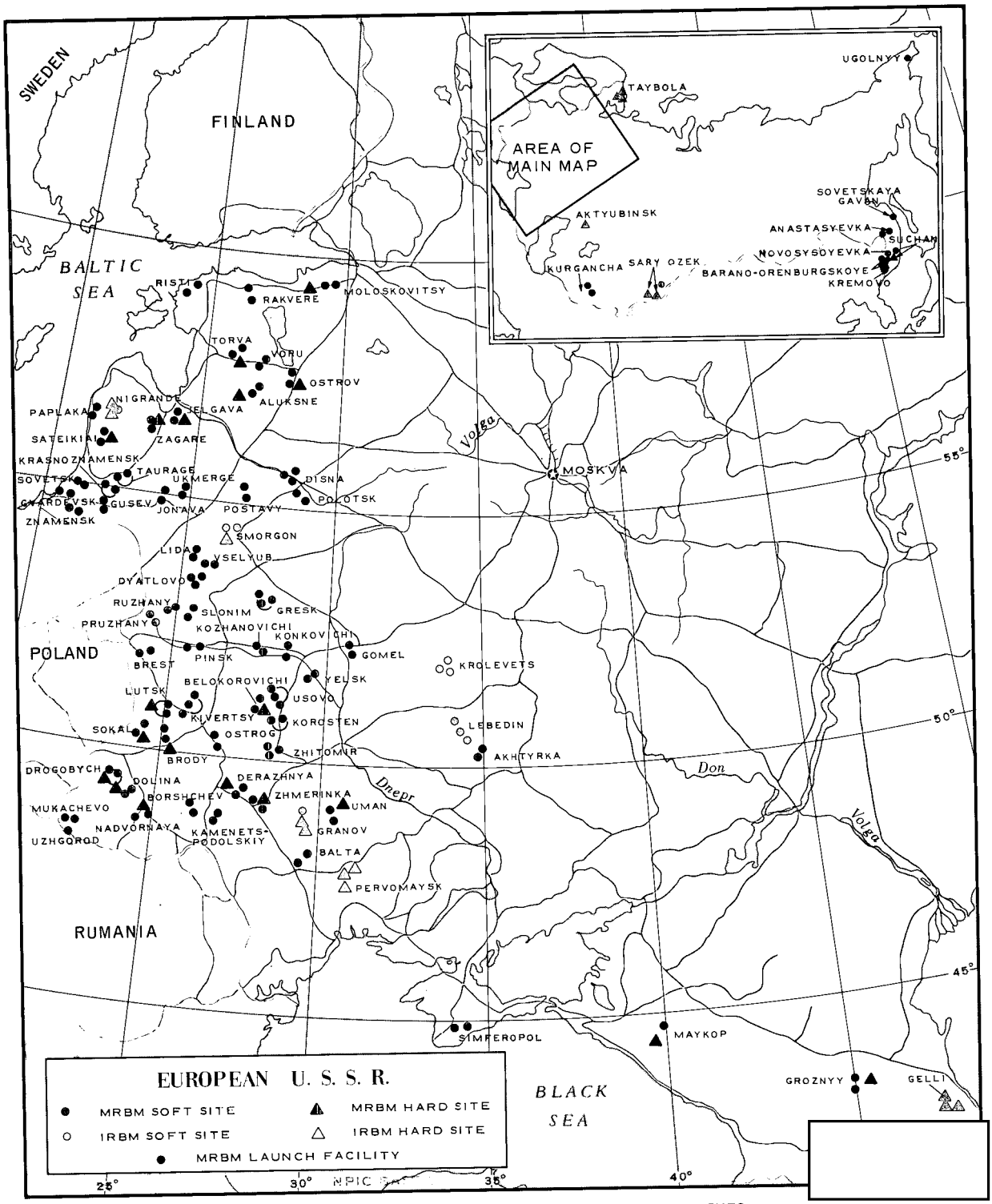


FIGURE 7. DEPLOYMENT OF SOVIET IRBM/MRBM COMPLEXES.

SOVIET IRBM/MRBM DEPLOYMENT

Although no major changes in the Soviet IRBM/MRBM force have been observed during the past year, construction of bunkered missile-ready buildings is still occurring at several hard IRBM sites, and changes have occurred in the handling and storage of fuels at some complexes. In [redacted] major new construction of an unidentified type was underway at Kara Babau Launch Site 1 of the Sary Ozek Complex. No clear interpretation of its purpose is yet evident. We still estimate that the current operational force comprises somewhat over 700 operational launchers, including some 135 in a hard configuration, deployed at about 200 sites. We have no evidence to indicate any further deployment of these systems, the deployment of new systems, or the retrofitting of existing facilities. The locations of deployed IRBM/MRBM complexes are shown in Figure 7. Typical configurations of the launch sites, and the weapons system associated with each, are depicted in Figure 8.

KAPUSTIN YAR MISSILE TEST CENTER

There is evidence that the Soviets are developing new IRBM/MRBM systems at Kapustin Yar (Figure 9). Along with the continued test firing of 2 new vehicles, the KY-6 and KY-8, the most significant development during the past year is the appearance of a new launch facility, Kapustin Yar Launch Area 6C, which is still under construction. This facility contains 3 in-line silos, 2 connected to a single control bunker and one connected to another control bunker, with additional connections between the 2 bunkers. At the present time, it cannot be determined whether this is a single prototype for a 3-silo site, or a dual purpose prototype combining a single-silo and a 2-silo pattern into one R&D facility. Certainly, further development of multi-silo sites would be a backward step in current Soviet deployment policy.

Construction and silo modification of an undetermined nature continues at Launch Site 4C1, the prototype MRBM hard site, where at least 3 of the 4 silos have been, or are currently being, modified.

Launch Area 6C

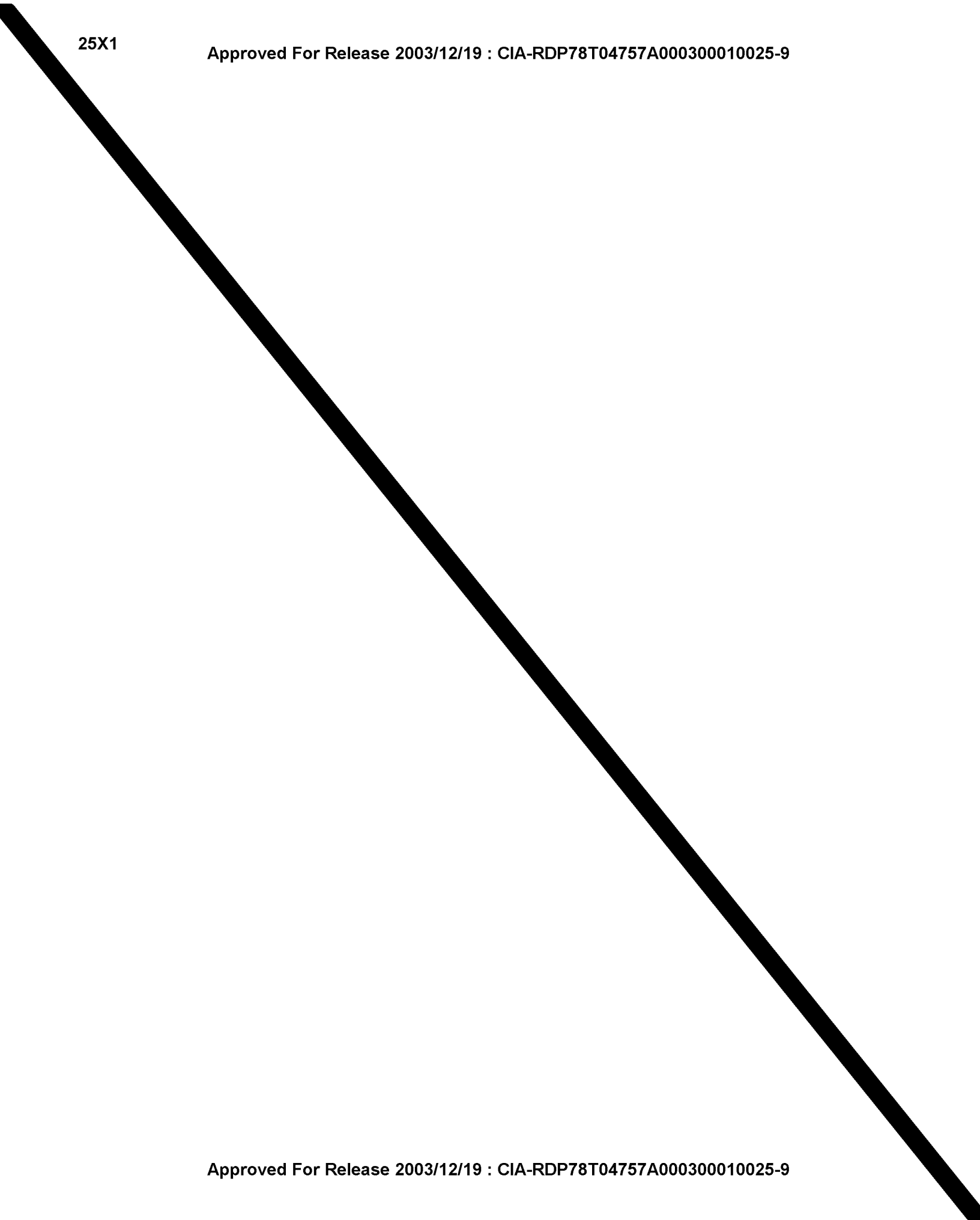
Launch Area 6C is located approximately 1.4 nm south of Launch Area 5C. Launch Area 6C was negated on [redacted] 25X1
Construction of this launch area, consisting of work on the service road and scarring at the future silo sites, was first seen on [redacted] 25X1
[redacted] 25X1
[redacted] showed the service road and the main administration/security building as probably completed. This mission also revealed that excavation had begun for the silos and a control bunker. The best coverage, to date, was [redacted] 25X1
[redacted] which shows the 3 silos under construction and numerous permanent and temporary buildings. 25X1

The silos are irregularly spaced in a north-to-south alignment, with a distance of 490 feet between the north (6C1) and center (6C2) silos, and 330 feet between the center (6C2) and south (6C3) silos. All 3 silos have an inner diameter of approximately 20 feet and an outer diameter of approximately [redacted] The silos are connected to both underground control bunkers by underground conduits. The launch area appears to be near the midstage of construction. 25X1

Launch Site 4C1

Modification of Launch Site 4C1 began in 1964. A spur from the rail line to Launch Area 1C branched toward Launch Area 4C in [redacted] 25X1
[redacted] and was completed to the southwest silo 25X1
at Site 4C1 by [redacted] 25X1
Some type of modification was begun in [redacted] 25X1
[redacted] at the northeast silo area. The northwest 25X1
silo is being modified in the same manner as

25X1



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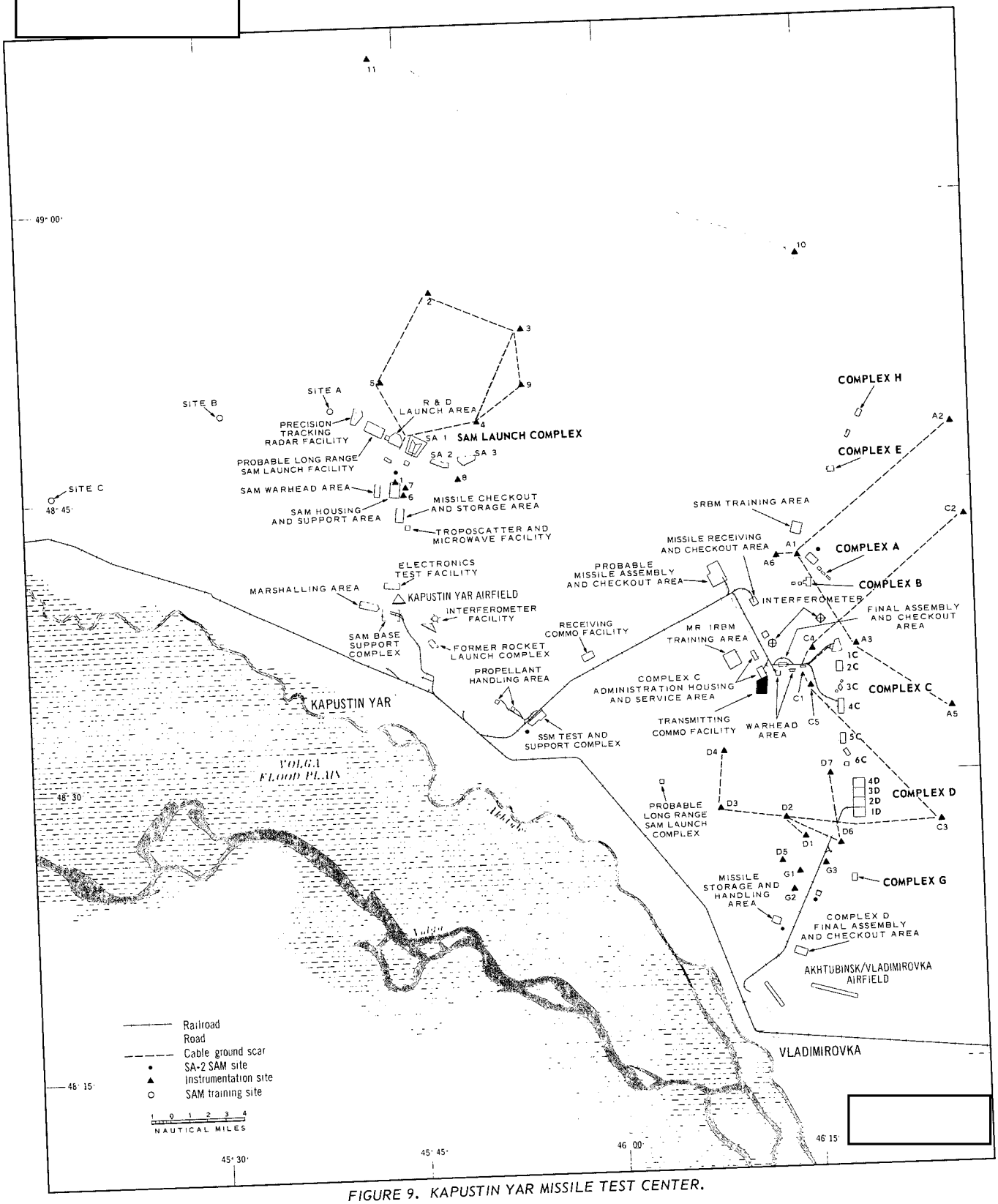

FIGURE 9. KAPUSTIN YAR MISSILE TEST CENTER.

25X1

25X1

the northeast silo. A fence has been constructed across the access road in front of the silo, and extensions of the silo-cover rails, as well as crossover rails, have been emplaced; an open framework structure, like the one noted at the northeast silo, is also under construction. The modifications to the northeast and northwest silos do not appear to be extensive, and may amount only to the addition of refurbishing structures.

Scarring, and activity noted on the southeast silo apron in indicate that the facility will undergo modifications of an undetermined type. Modification of the southwest silo, which began in is probably complete. These modifications have been extensive, involving the apparent reduction of the silo diameter from approximately to approximately

There is no evidence to associate these silo modifications with any particular new missile, but the extreme variations in silo diameters indicates that two different systems are probably involved.

TABLE 1. SUMMARY OF ESTIMATED STATUS OF IDENTIFIED ICBM, IRBM, AND MRBM LAUNCHERS AT DEPLOYED COMPLEXES, [redacted]

Type	Sites	Launchers	Operational	U/C
		ICBM		
1A	3	4	4	0
IIA	5	10	10	0
IIB	29	58	58	0
IIC	7	14	14	0
IID	30	60	60	0
IIIA	23	69	69	0
IIIB	3	9	9	0
IIIC	182	182	114	68
IIID	539	539	330-360	209-179
TOTALS	821	945	668-698	277-247
		IRBM		
III	13	50	50	0
IV	17	51	51	0
TOTALS	30	101	101	0
		MRBM		
I	84	336	336	0
II	51	204	204	0
IV	21	84	84	0
TOTALS	156	624	624	0
GRAND TOTALS	188	709	709	0

*Figures include 3 launch silos at Type IIIA and IIIB ICBM and Type IV IRBM sites, and 4 launch silos at Type IV MRBM sites. Type IIIC and IIID ICBM sites contain single silos.

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